

APPROVED BY DRAFTSMAN	O.G. FIG.	
	CLASS	SUBCLASS

1 ATGATTACAATAGTTTATTAACTCTAGCCATCTGGTGGGTTGATTCCATCTGGTCTCTGGATTGGACAAGTATTCTCAAAATCAATCTACGGCGAGC
 100
 TACTAATGTTATCAAAATATTAGGATCGGATAGACGACCCAAAGCTAAGGTAGACAGACCTAACCTGTTCAATAAGAAAGTTAGTTAGATGGCTCG

 101 ATGGTTCTGGTAACACTGGAACGACCAACACCTTCCGGATTTCAGGAAAGCTGGTATGGCAACCTTGTGATTGACTTTTCAAAGGAACCCCTAGC
 200
 TACCAAGACCATTTGACCTTGCTGGTGTGGAAAGGGCGTAAAATCCATTCTTCGACCCATACCGTTGGAAACACTAACTGAAAAGTTTCGAGATCG

 201 AACGGCTGCTTCCGATTATTTCATCTACAAGGGCTTTCTCCTCATCTGGACTTTGGCTGTATCGGCCATACCTTCCCTATCTTTGAGGATT
 300
 TTGGGAGCGAAGGGCTAAATAAAAGTAGATGTTCCGCAAAGGAGAGTAGAAAGGAGAGTAGAAAGGAGATAGAAAGGGTATGAAAGGTAGAAACCGACA

 301 AAAGGGTGGTAAGGCTGTCGCAACCGAGTGGCTGGGAGTGATTTCGGATTGGCCTATCTTCTGTCCTACCTTGGGATTATCTCTTGGAGGTCTCTATC
 400
 TTCCACCACTTCGACAGGGTTGGTCACTGCTCAAGGATCGATGTTCACTAAAGCCCTAAACGGCTTCAACTAAAGGCTAAATAGAAGAACCTCGAGAGATAG

 401 TTGGCAGTATGATTCACTGCTAGTGTCAAGGATCGATGGCTGGGCTGTATGGGGTTCTGCTCTTCCACTTTGGTTTATCTGAGGTAACTATGA
 500
 AACCGTCATACTAAAGTGACAGATCACAGTGTCTAGCTAACGCCGACAATAGCCCCGACAATAGGAGTGAAMACCGAAAGGAGAGAGTAGAAAGGTGA

 501 GAGAGAGAAGTAGGGATATAGGACACTTGGTAGTTGATTATCTTCGCTATCAAGGACAATAATAGCTCGTATCAAAAATAACTGAAAATTTGGTC
 600
 CTCTCTCTCATCGCTTATTCGCTTATAGGACACTTGGTAGTTGATTATCTTCGCTTATCAAAACTAAACTGAGTAACTGAGCTATGTTGACTTTAAACCAAG

 601 SLLFIAIIILALASLIIIRHKAIDNIARKNKTENLV 200
 168 SLLFIAIIILALASLIIIRHKAIDNIARKNKTENLV 200

 601 CCTTGGGGATTGGACCTAACCCATCAAGATCCTAAATAAAATAA 642 SEQ ID NO:2
 GGAAACCCCTAACCTGGATTGGTAGTTCTAGGATTTTATT 642 SEQ ID NO:1

 201 PWGLNLTHTHODPKK 213 SEQ ID NO:1

FIG. 1

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1 ATGTAATTGCTTATTGATTATTTGGCCTACTTGTAGGCATTCCATCTGGCCAAAGGAATTGTATTGGGAGC
 TACAATTAAAGGAATAACTAAACCGGATGAACTATCCGTCGTAAAGTAGCCGAAATTAAACCCGGTTGAACTATAAGCCCTCG 100

 1 M L I A L L I I L A Y L I G S I P S G L I V G K L A K G I D I R E H 34
 101 ACGGAAGGGCGCAACTTAGGGGCTACCAATGCAATTGGCTGATTCATGGCGGAGTATGGCTCATAGCCGGAGATATTGGAAAGGGACACTGGC
 TGCCCTGGCGTTGAATCCGGATGGTACGTAAAGGCAATTGGCATGTAACCCACATTTCGACCAAGGCCAGCAAGCCAAAGGCAAGCTTCCCTGTGACCG 200

 15 G S G N L G A T N A F R T L G V K A G S V V I A G D I L K G T L A 67
 201 AACTGCAATTGCCTTTCTCATGGCATGTTGATATTACCCGCTTCTTGAGGAGTCTTGGGGTTAGGCCACGTGTTCCCATCTTGGCCAATTAAATTAA
 TTGACGTAACGGAAAGAGTACGTACAACATAAGTGGCGAAGAACGTCTCAGAAACGGTACAACTAAAGTGGCGACAATTAAGTGGGACTAAACTAAGTGGG 100

 68 T A L P F L M H V D I H P L L A G V F A V L G H V F P I F A K F K
 301 GGGGGTAAGCCGTTGGCGACATCAGGGGGCGTTGGCTATTAGGCACCCCTGGTAAATAGCTACGATCGTTGGGTATTCTCATCTTGGTACCCCTGGCT
 CGGCCATTGGCACCGCTGTAAGCTCCGCAAAGATAAAACGATAAAATGGGTGGGACAATTAGTGTGCTACCAACGCCATAGAAAGTAGAAAAATATGAACCT 400

 101 G G K A V A T S G G V L L F Y A P L L F I T M V A V F F I F L Y L T 134
 401 CTAAATTGGTTCTCTCATGGATGTTAACAGGGATCTATACTGTTATATAGTGTGATGATAGTGTGTTACCCCTGGCT
 GATTAAACAGAGAGAGTAGCTACATTGGCCTAGATATGCAAAAGAAACAGGTACTATGCATAAAACTAACAGCAATGGGACGA 500

 135 K F V S L S S M L T G I Y T V I Y S F F V H D T Y L L I V V T L L
 501 CACTATTTTGGATATACAGACACCGAGCGAACATTAAACGAAATTATCAATAAAACAGAACCTAACAGTAATGGTATAAA 582 SEQ ID NO:4
 GTGATAAAACACTATATGCTGTGGCTCGCTGTAAATTGGCTTAAATGTTACCCATTATTGTCTGGATTTCATTTACCAATT 501 SEQ ID NO:12
 168 T I F V I Y R H R A N I K R I I N K T E P K V K W L . 193 SEQ ID NO:3

FIG. 2

APPROVED BY DRAFTSMAN	O.G. FIG.
	CLASS SUBCLASS

STRATEGY FOR TARGETED DELETIONS OF GENES
 IN *S. PNEUMONIAE*

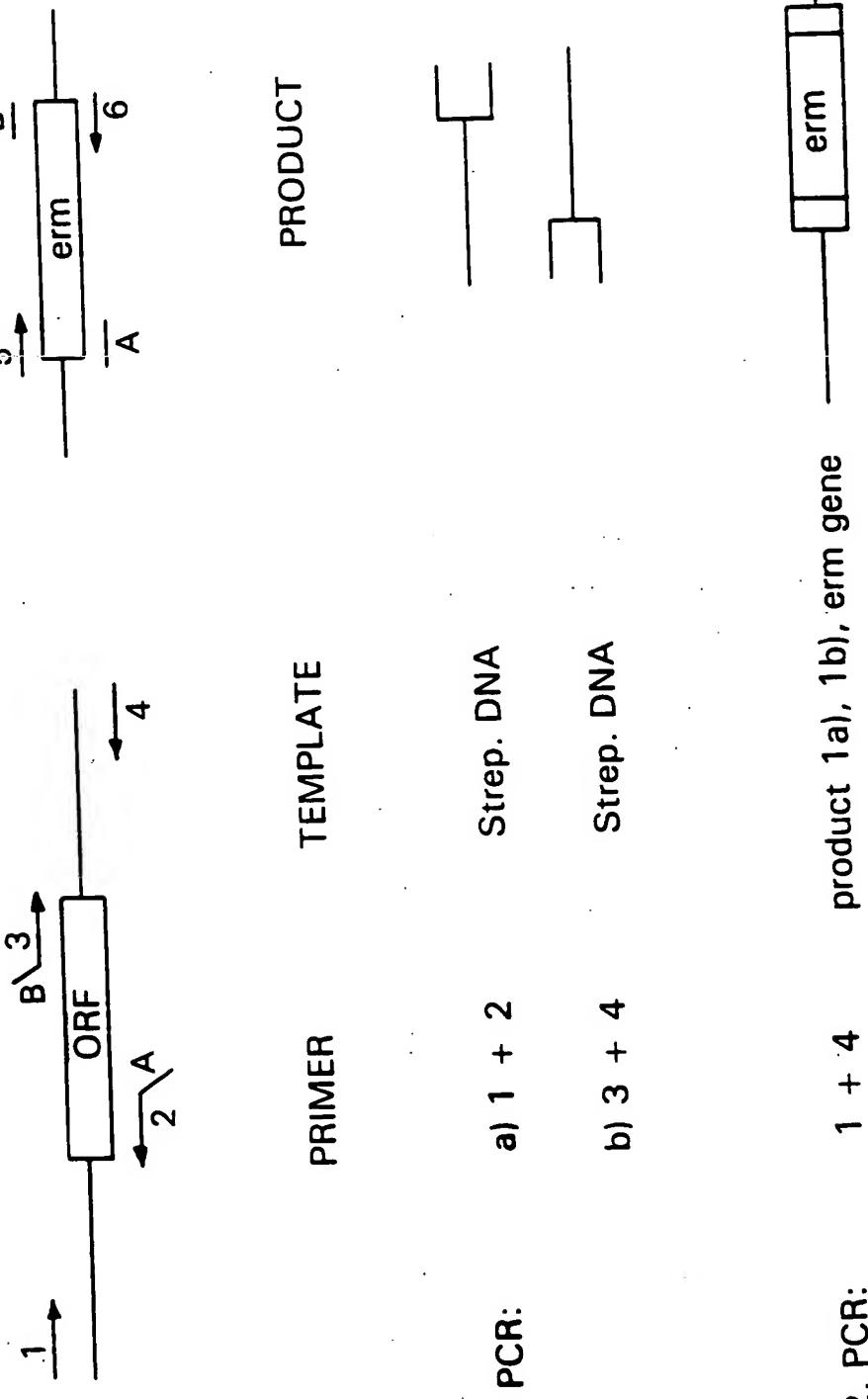


FIG. 3

APPROVED	O.G. FIG.	
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NON-POLAR GENE KNOCKOUTS IN *S. PNEUMONIAE*

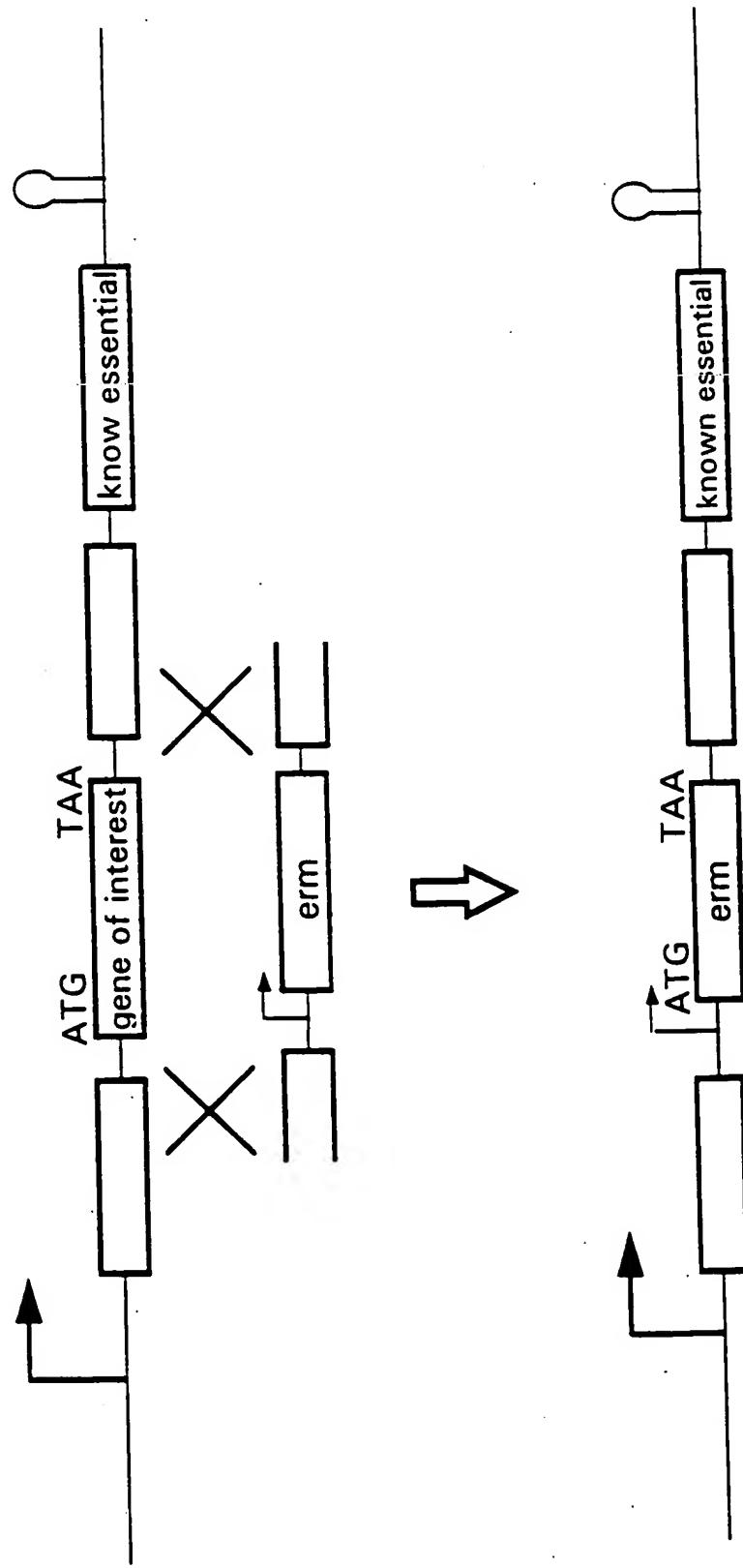


FIG. 4